

VU Research Portal

Advancing the Measurement of Organizational Legitimacy, Reputation, and Status: First-order Judgments vs Second-order Judgments

Haack, Patrick; Sieweke, J.

published in

Academy of Management Discoveries
2020

DOI (link to publisher)

[10.5465/amd.2019.0103](https://doi.org/10.5465/amd.2019.0103)

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Haack, P., & Sieweke, J. (2020). Advancing the Measurement of Organizational Legitimacy, Reputation, and Status: First-order Judgments vs Second-order Judgments: Commentary on "Organizational legitimacy, reputation and status: Insights from micro-level management". *Academy of Management Discoveries*, 6(1), 153-158. <https://doi.org/10.5465/amd.2019.0103>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

E-mail address:

vuresearchportal.ub@vu.nl

C O M M E N T A R Y

ADVANCING THE MEASUREMENT OF ORGANIZATIONAL LEGITIMACY, REPUTATION, AND STATUS: FIRST-ORDER JUDGMENTS VS SECOND-ORDER JUDGMENTS—COMMENTARY ON “ORGANIZATIONAL LEGITIMACY, REPUTATION AND STATUS: INSIGHTS FROM MICRO-LEVEL MANAGEMENT”

PATRICK HAACK¹
University of Lausanne

JOST SIEWEKE
Vrije Universiteit Amsterdam

As improving the construct validity of measures has been a fundamental concern in management research (Aguinis & Edwards, 2014; Aguinis & Vandenberg, 2014), we commend Bitektine, Hill, Song, and Vandenberghe (2020) for their efforts to develop and validate individual-level measures for organizational legitimacy, reputation, and status. These measurement instruments undoubtedly will be helpful to advance research on the micro-level antecedents and outcomes of these social evaluations and will prove instructive for the development of measures for related evaluations, such as organizational stigma (Devers, Dewett, Mishina, & Belsito, 2009; Hudson, 2008) and celebrity (Pfarrer, Pollock, & Rindova, 2010; Rindova, Pollock, & Hayward, 2006). Although we appreciate the authors' work and contribution to a micro-foundational agenda in research on social evaluations, we have some concerns with regard to their measurement approach. Specifically, although Bitektine et al. (2020) stress the multilevel nature of social evaluations, they do not translate this insight into a measurement instrument that acknowledges individual evaluators hold both private judgments (“first-order judgments”) and judgments about the collective-level judgment (i.e., judgments of the judgments of other evaluators in a specific reference group, or “second-order judgments”). These two types of individual judgments reflect different facets of social evaluations and have different effects on individual behavior, and thus, researchers need to avoid conflating them within a measurement instrument. Our commentary seeks to complement the approach of Bitektine et al. (2020) by

sensitizing readers to the distinction between first-order and second-order judgments and by developing recommendations for future scale development efforts. These recommendations are given in a spirit of collegiality and with an understanding that progress in social evaluation research requires the concerted effort of many researchers over many years (Deephhouse, Bundy, Tost, & Suchman, 2017; Deephouse & Suchman, 2008).

TWO TYPES OF INDIVIDUAL-LEVEL JUDGMENTS

Several social evaluations have been conceptualized as multilevel constructs that encompass both individual-level judgments, which are subject to cognitive constraints and biases (e.g., Bitektine, 2011; Mishina, Block, & Mannor, 2012), and collective-level judgments, which are derived from the coalescence of individual judgments and grant a focal judgment object (e.g., an organization or organizational practice), the status of a stable and enduring social fact (Johnson, Dowd, & Ridgway, 2006). Although the multilevel nature of social evaluations has been most intensively discussed in the context of organizational legitimacy (Bitektine & Haack, 2015; Suddaby, Bitektine, & Haack, 2017), processes spanning multiple levels have also received attention in research on reputation (Ravasi, Rindova, Etter, & Cornelissen, 2018) and status (Piazza & Castellucci, 2014). This body of work illustrates that social evaluations occur simultaneously at the collective level (where perceptions of appropriateness, standing, and status are created, shared, and validated) and at the level of the individual evaluator, who uses collective perceptions

¹ Corresponding author.

to derive their judgment and engages in appropriate action (Haack & Sieweke, 2018; Johnson et al., 2006).

The multilevel nature of social evaluations has important implications for how scholars should measure these evaluations at the individual level. Specifically, we suggest that measurement approaches need to account for two types of individual-level judgments. The first of these types is an individual evaluator's private judgment about an organization's legitimacy, reputation, or status. This type of judgment reflects an evaluator's own assessment of whether the organization is legitimate, reputable, or of high status. The second type of judgment is an individual evaluator's judgment of the judgments of other evaluators in a specific reference group (e.g., a team, organization, platform, industry, field, or society at large). That is, individual evaluators hold judgments about judgments that exist at the collective level. Drawing on research on judgments and decision-making, we call an evaluator's private judgment about an organization's legitimacy, reputation, or status a "first-order judgment." In turn, we refer to an evaluator's judgment about the judgments of other evaluators as a "second-order judgment." Distinguishing between first-order and second-order judgments is important because recent research has found that second-order judgments are better predictors of behavior than first-order judgments. For instance, evaluators' judgments regarding the community-level support of energy-saving efforts predict their own energy-saving efforts but first-order judgments do not (Jachimowicz, Hauser, O'Brian, Sherman, & Galinsky, 2018). Furthermore, evaluators who believe that other evaluators hold optimistic stock market expectations tend to invest more in stocks even after controlling for first-order judgments (Egan, Merkle, & Weber, 2014). Importantly, including second-order judgments in the methodological apparatus of social evaluation scholars acknowledges that individuals and their judgments are situated in personal, social, and historical contexts. Indeed, the "embeddedness" of evaluators requires the development of a holistic and contextualized understanding of individual judgment formation, and scholars need to make sure that the judgment context is not separated or isolated from micro-level measurement (Albarracín & Shavitt, 2018). That is, an individual evaluator does not operate as a "mental Robinson Crusoe" (Zerubavel, 1997: 7); rather, evaluators continuously assess social norms and the collective support for a judgment object, meaning that the *context itself* constitutes a judgment target.

The idea of distinguishing between two different types of individual-level judgments has been forcefully propagated in the realm of legitimacy research, where scholars have advanced the conceptual distinction between "propriety belief" and "validity belief"

(Bitektine & Haack, 2015). The term "propriety belief" corresponds to the notion of first-order judgment and refers to an individual evaluator's private endorsement of a legitimacy object (Suddaby et al., 2017). In turn, the term "validity belief" reflects the idea of second-order judgments and denotes an individual evaluator's judgment that a legitimacy object is perceived as appropriate by others in a collectivity of individuals, independently of whether the evaluator privately endorses the object (Johnson et al., 2006). Hence, although validity can be said to exist objectively as a social fact and independently of the judgment of a single evaluator, it enters the judgment formation of an individual evaluator as a "validity cue," which the evaluator uses to form a validity belief (Haack & Sieweke, 2018; Tost, 2011). However, evaluators consider proper legitimacy objects as desirable and, thus, follow prescriptions voluntarily and sometimes enthusiastically; compliance with valid legitimacy objects is based on social obligation and control (Johnson, 2004; Johnson et al., 2006). Validity beliefs, thus, affect behavior, and evaluators tend to adapt their propriety beliefs over time to what they perceive as valid (Haack & Sieweke, 2018; Walker, Rogers, & Zelditch, 1988). Furthermore, evaluators tend to "silence" propriety beliefs that are inconsistent with their validity beliefs (Bitektine & Haack, 2015). Given that social evaluations are characterized by similar psychological and social processes (Bitektine, 2011), the dynamics we describe here for the context of legitimacy are likely to apply to reputation and status in a similar fashion. In this view, second-order judgments are generally used to validate first-order judgments and, thus, constitute an important antecedent of individual-level judgment and behavioral change. Furthermore, second-order judgments may affect whether evaluators conceal or disclose their first-order judgments.

It seems evident that the individual measures need to distinguish between these two types of judgments to prevent uncertainty regarding the construct validity of these measures. Thus, the fact that the measurement instruments developed by Bitektine et al. (2020) do not make such a distinction impairs their potential to advance an empirical research agenda on social evaluations as multilevel constructs. In the following sections, we develop this critique in more detail and offer recommendations for future research.

ASKING THE RIGHT QUESTIONS

The first issue is that the measures developed by Bitektine et al. (2020) cannot discriminate between first-order judgments and second-order judgments. The reason for this lies in the ambiguous wording of the measurement items. For example, although item

4 of the final measurement scale (“I agree with this company’s business practices”) can be seen as gaging an evaluator’s first-order judgment (i.e., an evaluator’s propriety belief about the company’s pragmatic legitimacy), it is not clear whether the remaining items measure first-order judgments or second-order judgments (see Table 11 in Bitektine et al., 2020). For instance, item 6 (“this company follows the best management practices”) may capture an evaluator’s personal agreement with this statement (first-order judgment) or an evaluator’s assessment of whether other evaluators agree with this statement (second-order judgment). Most items of the scale are characterized by similarly ambiguous wording, thus introducing a risk of conflating first-order and second-order judgments. Although prior conceptual works have highlighted the crucial distinction between first-order and second-order judgments (e.g., Bitektine & Haack, 2015; Suddaby et al., 2017), Bitektine et al.’s (2020) lack of acknowledgment of this conceptual distinction in their measurement instruments may be a result of the fact that their scale development started well before scholars introduced the distinction.

It is important to clarify that the problem of ambiguous wording is not unique to the measurement instruments of Bitektine et al. (2020). In the past, judgment scales have frequently conflated the measurement of first-order and second-order judgments, focusing only on one type or the other, or have conflated both types of judgments within a measurement scale. In the context of organizational legitimacy, for instance, Chung, Berger, and DeCoster (2016, Table 3) mix items that capture private judgments (e.g., “I have a positive opinion about advertisements for prescription drugs”) with items that cannot unambiguously discriminate between first-order and second-order judgments (e.g., “the prescription drug companies do a good job making their drugs”). Alexiou and Wiggins (2019) explicitly survey second-order judgments in the context of moral legitimacy (e.g., “most people would consider this organization’s practices to be moral”), whereas other items seem to survey first-order judgments about pragmatic and cognitive legitimacy (e.g., “I believe that this organization is necessary”). Likewise, in the context of corporate reputation, Highhouse, Broadfoot, Devendorf, and Yugo’s (2009) scale measures an individual evaluator’s assessment of a company’s general reputation (e.g., “this company is widely admired and respected”), thus gaging a second-order judgment, whereas the scale of Ponzi, Fombrun, and Gardberg (2011) mixes first-order judgments about a company’s reputation (“[Company X] is a company that I admire and respect”) with items that may rather capture second-order judgments (e.g., “[Company X] has a good overall reputation”).

It seems advisable for social evaluation scholars to develop measurement instruments that unambiguously discriminate between first-order and second-order judgments. Specifically, we argue that the scale of Bitektine et al. (2020) could be modified and extended, so that existing items are clearly stated to address either first-order judgments about an organization’s legitimacy, reputation, and status or their corresponding second-order judgments. For instance, item 5 could be separated into “in my personal view, this company contributes positively to society” (presumably measuring a private judgment) and “most people would consider that this company contributes positively to society” (presumably measuring a second-order judgment). In this context, social evaluation scholars can learn from works in other disciplines and adapt scales that explicitly discriminate between first-order and second-order judgments (e.g., Jachimowicz et al., 2018).

ASKING NO QUESTIONS

Another issue with the measurement instruments of Bitektine et al. (2020) is that they cannot measure first-order judgments that are silenced because of desirability effects. Indeed, attitude research has highlighted that explicit self-report instruments may only reveal those judgments that individual evaluators consider to be valid (e.g., Petty, Brinol, & DeMarree, 2007). It follows that self-report instruments may primarily capture second-order judgments (e.g., validity beliefs), whereas they may be less effective in accurately assessing first-order judgments (e.g., propriety beliefs). Naturally, this issue can be expected to be more relevant in the context of controversial organizations or issues, where evaluators are less willing to disclose their first-order judgments and for contexts where evaluators lack the knowledge or interest to form their own judgments.

Indirect or “implicit” measures of first-order judgments may offer a viable alternative to “explicit” measures like those developed by Bitektine et al. (2020). Implicit measures, which include techniques such as the implicit association test and evaluative priming, are designed to assess automatic judgments that are not necessarily linked to explicit self-report measures but nevertheless may shape evaluators’ behavior (Bohner & Dickel, 2011). As discussed by Alexiou and Wiggins (2019), Humphreys and Latour (2013) were among the first to use an implicit measure to examine first-order judgments in the context of social evaluations research. Specifically, they inferred cognitive legitimacy based on the time evaluators needed to categorize an organization into a preexisting category. They concluded that evaluators who judge an organization to have greater cognitive legitimacy are able to categorize it more quickly, thus

exhibiting faster response times. Similar procedures for assessing first-order judgments about the socio-political legitimacy, reputation, or status of an organization appear feasible and may be able to overcome the potential weaknesses of explicit self-report measures. So far, social evaluation scholars have not capitalized on the use of implicit measures, but we see great promise for doing so in the future.

IMPLICATIONS FOR JUDGMENT AGGREGATION

The distinction between first-order and second-order judgments is consequential for the aggregation of individual-level measures into collective-level constructs. Considering this distinction gives rise to the question of what is the *content* of such aggregation. That is, which type of individual judgment should be aggregated into a collective-level construct—the evaluators' first-order judgments about the legitimacy, reputation, or status of an organization, or the evaluators' second-order judgments (i.e., their assessment of how others evaluate the organization)? For instance, in the context of legitimacy, does the collective-level construct of validity reflect the consolidation of evaluators' propriety beliefs or the consolidation of their validity beliefs? Addressing this question is important, as behavioral consequences for the organization (e.g., whether it is able to grow and attract resources) may stem from the consolidation of evaluators' first-order or second-order judgments.

As discussed earlier, evaluators tend to adapt or silence their first-order judgments when they perceive them to be inconsistent with their second-order judgments and to develop behavioral dispositions that are in line with their second-order judgments (Haack & Sieweke, 2018). In such circumstances, it seems justifiable to aggregate second-order judgments into a collective-level construct. In turn, in contexts where evaluators are less constrained and more willing to disclose their first-order judgments, evaluators are more likely to take action based on these judgments, therefore warranting the aggregation of first-order judgments into a collective-level construct. Interestingly, research on organizational climate has also struggled with the question of whether direct consensus models (which are similar to aggregating first-order judgments) or referent-shift consensus models (which are similar to aggregating second-order judgments) represent the more appropriate composition method. A recent meta-analysis (Wallace, Edwards, Paul, Burke, Christian, & Eissa, 2016) concluded that both composition methods are feasible and found only small differences in the effect sizes. However, an important assumption that needs to be proven for the aggregation of first-order

judgments into a valid collective-level construct is that most evaluators do not suppress or falsely report their first-order judgments.

We suggest that our considerations regarding the appropriate measurement and aggregation of individual judgments predisposes the analytical separation of two collective-level constructs (i.e., one based on the aggregation of first-order judgments and one based on the aggregation of second-order judgments). For instance, for the context of legitimacy, we consider it important to acknowledge that an organization can be valid, and thus, it can induce a sense of obligation that guides behavior, when its acceptance is "assumedly shared" by others in a social group (Suchman, 1995: 574). In other words, validity does not necessarily require consensus in terms of propriety beliefs but merely consensus in terms of validity beliefs. In this view, validity can be based on "false consensus," or a misperception of the prevalent propriety belief. That is, even if most individual evaluators hold unfavorable propriety beliefs about an organization (which means that only a few evaluators privately endorse it), the organization can still be highly valid if evaluators falsely assume that most people in their reference group hold favorable propriety beliefs about it. The belief in the validity of an organization (or any other legitimacy object) can, thus, exist as a social fact and can guide behavior even in the presence of heterogeneous or largely unfavorable propriety beliefs, especially when the network ties among the members of a group are weak and communication is sparse, which makes it difficult for individual evaluators to detect the actual propriety beliefs of other evaluators (Clemente & Roulet, 2015; Zhu & Westphal, 2011). The distinction between "actual" and "apparent" consensus into two unique collective-level constructs may advance scholarly understanding of the diffusion of misperceptions and unpopular norms (Centola, Willer, & Macy, 2005) and may also help to better account for the occurrence of sudden or unanticipated institutional change (Clemente & Roulet, 2015). We conjecture that the relevance of these considerations is not limited to the realm of legitimacy but extends to reputation, status, and other social evaluation constructs.

CONCLUSION

The study of Bitektine et al. (2020) successfully advances a micro-foundational research agenda on social evaluations; however, further work remains to be carried out. When developing individual measures for social evaluations, researchers must discriminate first-order judgments from second-order judgments and may want to explore implicit instruments for measuring first-order judgments.

Furthermore, they need to carefully consider which type of individual-level judgment can be meaningfully aggregated into a collective construct.

REFERENCES

- Aguinis, H., & Edwards, J. R. 2014. Methodological wishes for the next decade and how to make wishes come true. *Journal of Management Studies*, 51(1): 143–174.
- Aguinis, H., & Vandenberg, R. J. 2014. An ounce of prevention is worth a pound of cure: Improving research quality before data collection. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1): 569–595.
- Albarracin, D., & Shavitt, S. 2018. Attitudes and attitude change. *Annual Review of Psychology*, 69: 299–327.
- Alexiou, K., & Wiggins, J. 2019. Measuring individual legitimacy perceptions: Scale development and validation. *Strategic Organization*, 17: 470–496.
- Bitektine, A. 2011. Toward a theory of social judgments of organizations: The case of legitimacy, reputation, and status. *Academy of Management Review*, 36(1): 151–179.
- Bitektine, A., & Haack, P. 2015. The macro and the micro of legitimacy: Towards a multi-level theory of the legitimacy process. *Academy of Management Review*, 40(1): 49–75.
- Bitektine, A., Hill, K., Song, F., & Vandenberghe, C. 2020. Organizational legitimacy, reputation and status: Insights from micro-level measurement. *Academy of Management Discoveries*, 6(1): 107–136 (<https://journals.aom.org/doi/10.5465/amd.2017.0007>).
- Bohner, G., & Dickel, N. 2011. Attitudes and attitude change. *Annual Review of Psychology*, 62(1): 391–417.
- Centola, D., Willer, R., & Macy, M. 2005. The emperor's dilemma: A computational model of self-enforcing norms. *American Journal of Sociology*, 110(4): 1009–1040.
- Chung, J. Y., Berger, B. K., & DeCoster, J. 2016. Developing measurement scales of organizational and issue legitimacy: A case of direct-to-consumer advertising in the pharmaceutical industry. *Journal of Business Ethics*, 137(2): 405–413.
- Clemente, M., & Roulet, T. J. 2015. Public opinion as a source of deinstitutionalization: A “spiral of silence” approach. *Academy of Management Review*, 40(1): 96–114.
- Deephouse, D. L., Bundy, J., Tost, L. P., & Suchman, M. 2017. Organizational legitimacy: Six key questions. In R. Greenwood, C. Oliver, T. B. Lawrence, & R. Meyer (Eds.), *The Sage handbook of organizational institutionalism* (2nd ed.): 27–54. Thousand Oaks, CA: Sage.
- Deephouse, D. L., & Suchman, M. 2008. Legitimacy in organizational institutionalism. In R. Greenwood, C. Oliver, R. Suddaby, & K. Sahlin (Eds.), *The Sage handbook of organizational institutionalism*: 49–77. Thousand Oaks, CA: Sage.
- Devers, C. E., Dewett, T., Mishina, Y., & Belsito, C. A. 2009. A general theory of organizational stigma. *Organization Science*, 20(1): 154–171.
- Egan, D., Merkle, C., & Weber, M. 2014. Second-order beliefs and the individual investor. *Journal of Economic Behavior & Organization*, 107: 652–666.
- Haack, P., & Sieweke, J. 2018. The legitimacy of inequality: Integrating the perspectives of system justification and social judgment. *Journal of Management Studies*, 55(3): 486–516.
- Highhouse, S., Broadfoot, A., Yugo, J. E., & Devendorf, S. A. 2009. Examining corporate reputation judgments with generalizability theory. *Journal of Applied Psychology*, 94(3): 782–789.
- Hudson, B. A. 2008. Against all odds: A consideration of core-stigmatized organizations. *Academy of Management Review*, 33: 252–266.
- Humphreys, A., & Latour, K. A. 2013. Framing the game: Assessing the impact of cultural representations on consumer perceptions of legitimacy. *Journal of Consumer Research*, 40(4): 773–795.
- Jachimowicz, J. M., Hauser, O. P., O'Brien, J. D., Sherman, E., & Galinsky, A. D. 2018. The critical role of second-order normative beliefs in predicting energy conservation. *Nature Human Behaviour*, 2(10): 757–764.
- Johnson, C. 2004. Introduction: Legitimacy processes in organizations. *Research in the Sociology of Organizations*, 22(1): 1–24.
- Johnson, C., Dowd, T. J., & Ridgeway, C. L. 2006. Legitimacy as a social process. *Annual Review of Sociology*, 32(1): 53–78.
- Mishina, Y., Block, E. S., & Mannor, M. J. 2012. The path dependence of organizational reputation: How social judgment influences assessments of capability and character. *Strategic Management Journal*, 33(5): 459–477.
- Petty, R. E., Briñol, P., & DeMarree, K. G. 2007. The meta-cognitive model (MCM) of attitudes: Implications for attitude measurement, change, and strength. *Social Cognition*, 25(5): 657–686.
- Pfarrer, M. D., Pollock, T. G., & Rindova, V. P. 2010. A tale of two assets: The effects of firm reputation and celebrity on earnings surprises and investors' reactions. *Academy of Management Journal*, 53(5): 1131–1152.
- Piazza, A., & Castellucci, F. 2014. Status in organization and management theory. *Journal of Management*, 40(1): 287–315.
- Ponzi, L. J., Fombrun, C. J., & Gardberg, N. A. 2011. RepTrak™ pulse: Conceptualizing and validating a

- short-form measure of corporate reputation. *Corporate Reputation Review*, 14(1): 15–35.
- Ravasi, D., Rindova, V., Etter, M., & Cornelissen, J. 2018. The formation of organizational reputation. *Academy of Management Annals*, 12(2): 574–599.
- Rindova, V. P., Pollock, T. G., & Hayward, M. L. A. 2006. Celebrity firms: The social construction of market popularity. *Academy of Management Review*, 31(1): 50–71.
- Suchman, M. C. 1995. Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3): 571–610.
- Suddaby, R., Bitektine, A., & Haack, P. 2017. Legitimacy. *Academy of Management Annals*, 11(1): 451–478.
- Tost, L. P. 2011. An integrative model of legitimacy judgments. *Academy of Management Review*, 36(4): 686–710.
- Walker, H. A., Rogers, L., & Zelditch, M. 1988. Legitimacy and collective action: A research note. *Social Forces*, 67(1): 216–228.
- Wallace, J. C., Edwards, B. D., Paul, J., Burke, M., Christian, M., & Eissa, G. 2016. Change the referent? A meta-analytic investigation of direct and referent-shift consensus models for organizational climate. *Journal of Management*, 42(4): 838–861.
- Zerubavel, E. 1997. *Social mindscapes - An invitation to cognitive sociology*. Cambridge, MA: Harvard University Press.
- Zhu, D. H., & Westphal, J. D. 2011. Misperceiving the beliefs of others: How pluralistic ignorance contributes to the persistence of positive security analyst reactions to the adoption of stock repurchase plans. *Organization Science*, 22(4): 869–886.



Patrick Haack (patrick.haack@unil.ch) is Professor of Strategy at HEC Lausanne, University of Lausanne. His current research focuses on social evaluations, practice adoption, and the application of experiments to the study of institutionalization and legitimation. He is an incoming Associate Editor of the *Academy of Management Review* and serves or has served on the editorial boards of the *Academy of Management Review*, *Business & Society*, *Journal of Management Studies*, and *Organization Studies*.

Jost Sieweke (j.sieweke@vu.nl) is Associate Professor at the Management & Organization Department, Vrije Universiteit Amsterdam. His research focuses on legitimacy, human errors, and the role of leaders for follower performance and behavior. He is also interested in using natural experiments to infer causal relationships.

